

# Syllabus MIS 5050 Advanced Web-Based MIS Development Fall Semester 2018

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## Course Description

The Internet and other networking technologies provide unprecedented marketing, distribution, and coordination opportunities to companies of all sizes. The rapid proliferation of e-Commerce in both the B2B and B2C sectors has produced an increased demand for professionals who understand both the technical and managerial aspects of doing business electronically. Many USU MIS graduates find themselves working on e-Commerce systems within weeks of graduation.

MIS 5050 is designed to provide you with software development experience using a modern Web development platform, namely ASP.NET, to create e-Commerce or Web-based systems. You will use Microsoft Visual Studio, a professional integrated development environment, to build data-driven Web applications that fulfill a business need. You will also learn some of the tradeoffs inherent in e-Commerce systems and options based on the client's situation, needs, and the technical environment.

The course reinforces programming skills from MIS 3500 and database design and implementation skills from MIS 3330. Building upon this foundation, you will apply the subject material learned in this class to develop ASP.NET Web applications in the form of a code repository, a semester project, and a series of in-class coding challenges. These deliverables will require that your Web applications interface with a SQL Server relational database to support business activities.

**This is a challenging, practical, hands-on course that requires a significant amount of laboratory time or work at home with the appropriate software. The benefit you derive from the course will be directly proportional to the time and effort you choose to invest.** Students who are actively engage in learning the material report that MIS 5050 is one of the *most valuable classes* they have taken in the Huntsman School of Business. However, students who procrastinate or fail to invest the time necessary to understand the material inevitably end up frustrated and overwhelmed. Plan now to get the most you can out of our time this semester.

## Course Objectives

The objectives of this course are to help you:

1. Understand how e-Commerce systems are n-tiered systems architectures and which functional elements of a system may occupy which tier in the architecture. Understand how e-Commerce systems can share components with traditional in-house systems as well as integrating capabilities from external partners.
2. Understand how design decisions for e-Commerce systems affect the scalability of the system and the trade offs inherent in allowing for the maximum flexibility and scalability.

3. Understand how web-based applications are implemented with multiple pages in a web site and the techniques for navigating between pages and for passing data between pages in an application. Demonstrate by implementing multi-page web applications.
4. Understand using a modern web application package how controls are used to construct elements of the user interface, how to write code to manage these controls and how to respond to user choices. Understand the relationship between controls available in the development environment and standard HTML code for implementing user interfaces on web pages. Demonstrate by selecting appropriate controls for web applications and writing appropriate code to implement the application's logic.
5. Understand and demonstrate different techniques for managing the appearance of web applications including those techniques that allow easy change to the appearance of elements across the entire web application.
6. Understand the differences in state management between traditional applications and web-based applications. Understand the importance of state in controlling application logic and the different techniques for maintaining state in web applications. Demonstrate proper state management in web applications.
7. Understand and demonstrate how to connect the pages and controls in a web application to a relational database using stored procedures. Understand the different strategies available for providing data from the database to the application and the advantages and disadvantages of each.
8. Understand the importance of object oriented programming (OOP) to implementing an n-tiered e-Commerce (or any other) application and the special contribution OOP makes to scalability of e-Commerce systems. Demonstrate by implementing a simple application using multiple business objects to contain some application logic and database connectivity. Demonstrate how to connect business objects to both the database and the interface logic contained in the web page.
9. Understand the difference between web services and other e-Commerce system elements and the technology behind and the business value of web services. Implement a web service and a client to use the web service.

## Prerequisites

**This is not a beginning programming course!** The following prerequisites are required and may only be waived by the instructor on demonstration of extraordinary work or other experience that justifies the waiver. The prerequisites must be completed with a grade of 'C' or better before commencing this course; they may not be taken as co-requisites. Further, students may not take this course in conjunction with a repeat of one of these prerequisites aimed at improving a 'C-', 'D', 'F', or 'I' grade. (Students who are unable to earn grades of 'B' or 'A' in these prerequisites should seriously reconsider taking MIS 5050--see grading below for additional information.)

- MIS 3500 (Introduction to Business Applications Programming) or another object-oriented programming course
- MIS 3330 (Database Management)

In addition to these formal prerequisites, you should be familiar with basic principles of object-oriented programming (e.g. objects, classes, interfaces, inheritance, polymorphism, attributes, methods, etc.) as well as fundamental web development technologies such as HTML, CSS, and some familiarity with client-side scripting such as Javascript. These topics/technologies are essential components of the work in this course, but are NOT covered in any depth as a part of the course curriculum. The programming language used in this class is C# (C-Sharp), which is isomorphic to Visual Basic and syntactically similar to Java.

## Required Text

Title: Beginning ASP.NET 4.5 in C#  
Author(s): Matthew MacDonald  
Publisher: Apress  
ISBN-10: 1430242515  
ISBN-13: 9781430242512  
Description: Provides a comprehensive but concise foundation of ASP.NET features and techniques. **Note: An electronic version of this book can be accessed for free through the USU library (details and link posted on Canvas).**

## Recommended Text

Title: Beginning ASP.NET E-Commerce in C#, From Novice to Professional  
Author(s): Christian Darie & Karli Watson  
Publisher: Apress  
ISBN-10: 1430210745  
ISBN-13: 9781430210740  
Description: Demonstrates how to build an end-to-end e-commerce solution using ASP.NET programming tools and practices. The final product is a stylistically simple but fully functional Web storefront that builds on solid design principles and provides a good example of architecture that can be used in other projects.

## Course Materials/Access

All course material, including the course calendar, supplemental materials, assignments, grades, etc., will be posted to Canvas (<http://canvas.usu.edu>), USU's learning management system. You should have automatic access to the course on Canvas if you have registered for the course. ***It is very important that you access Canvas early and regularly in the semester, since you will be responsible any course material, change, or notification that is posted there.***

## Software

You will need access to the following software products for this course:

- Microsoft Visual Studio **2017**
- SQL Server **2016 Express LocalDB** (Note that this is the Express version, NOT the full version of SQL Server. The Express version is normally installed along with Visual Studio)

**To avoid incompatibility issues, you must use the versions identified above. Work submitted using other versions of the software may not be accepted.** This software is available in the HSB computer labs and through virtual machines built for this course. Software can also be downloaded for free through the Microsoft Imagine program by registering at the website linked from the course homepage on Canvas (usually takes a couple of days for account verification). You are encouraged to use your own personal laptop computer if possible.

## Course Structure and Schedule

The subject material for this course is practical and applied in nature. Because of this, most class periods will be spent working through examples and in-class coding challenges as described below. Thus, it is imperative that you come to class prepared and ready to actively engage with the material we are learning.

The course calendar on Canvas shows a tentative schedule of the topics to be covered (subject to change as semester progresses). Homework and project due dates are also posted on Canvas. It is very important that you keep yourself apprised of the schedule and work ahead whenever possible. **Procrastination = Frustration and Failure in this course!**

## Course Activities and Evaluation

The course consists of the following requirements/activities that will be evaluated to determine your final grade:

Activity	Type	Course Weight	Description
Exams	Individual	25%	One midterm exam and one final exam
Code Repository Exercises	Individual	15%	Set of sample ASP.NET applications that demonstrate mastery of critical Web development skills.
In-Class Coding Challenges	Individual	15%	Ad hoc coding challenges given in class that build on knowledge from code repository
Project	Team	30%	Project for the design and implementation of a working database and application (details will be provided in course materials)
Project Milestone Reviews	Team	10%	Meet with the instructor outside of class to demonstrate project progress and discuss next steps
Professionalism/Ethical Conduct	Individual	5%	Professionalism in work and in conduct (See below). Regular attendance and contribution at class meetings.
Do Some Good/Have Some Fun	Individual	1% Extra Credit	See description below

Grades will be determined on the following basis:

A	93 – 100%	B	83 – 86%	C	73 – 76%	D	63 – 66%
A-	90 – 92%	B-	80 – 82%	C-	70 – 72%	D-	60 – 62%
B+	87 – 89%	C+	77 – 79%	D+	67 – 69%	F	< 60%

### Exams

Two exams will be given: a midterm and a final. The exams will be take-home exams that are completed individually, and will feature both conceptual questions and coding questions. The exams are open book, open Web, and *open instructor*; however, you **may not collaborate or share answers in any way with other people, including current or former students**. The exam questions will be released a minimum

of one week before the exam is due (see course calendar on Canvas). Plan on a significant amount of time (> 8 hours) to complete each exam.

### Code Repository Exercises

The code repository exercises consist of a set of coding assignments that illustrate various aspects of ASP.NET functionality. There is a code repository exercise for roughly each major topic covered in the course. Each exercise has both written instructions and a pre-recorded video that guides you through the steps for completion. You will be expected to go through the relevant exercise *before* covering the corresponding material in class. Exercises will be completed as individuals and submitted together in deliverables at certain points during the semester. Specific exercises will be graded at random to ensure correctness.

### In-Class Coding Challenges

To reinforce concepts from the reading and the code repository, many classes will include in-class coding exercises that will be completed as teams. These exercises:

1. Will be given by the instructor in class and only in class. They will not be pre-announced or released at any other time.
2. Can be submitted in class and only in class. If you are not present in class, you will not be able to submit the exercise.
3. Will be completed and submitted as individuals. However, in some cases working as teams will be permitted and encouraged.
4. Will be graded mostly for participation rather than for content. However, to receive credit, you must come to class prepared and make a good faith effort to complete the requirements.

Finally, to give you some flexibility in case you legitimately need to miss a class, the lowest two coding challenge scores will be dropped from the grade.

### Project and Project Milestone Reviews

The semester project involves the design and construction of a fully functional, data-driven Web application that fulfills a specific need for an actual or fictitious client. This project will be completed in teams of 2-3 students, and will require a significant amount of work outside of class. The project is divided into milestones which you will submit periodically throughout the semester. Two of these milestones will require meeting with the instructor as a team to review your progress. More details about the project, including an overall project description and requirements for each milestone, are provided on Canvas.

### Professionalism and Ethical Conduct

Professionalism implies positive participation in class discussions and an appropriate attitude for learning. I request that you always demonstrate professionalism in this course, in your work as well as in your conduct. I expect that you will demonstrate professionalism in your work by:

1. Submitting your work on time. **Late work will not be accepted without a penalty to your professionalism score.**
2. Displaying integrity by doing your own work; **never, ever, ever plagiarize the work of others, including the textbook. Plagiarism is grounds for failing the course.**
3. Submitting college-level work. Your writing should consist of complete sentences, and should be free from spelling and grammatical errors. It should demonstrate to me that you understand the material and that you can thoughtfully justify your answers.

I expect that you will demonstrate professionalism in your conduct by:

1. Coming to class regularly and on time. I expect that you will attend class consistently and notify me when you will be absent, where possible. **To encourage attendance, I will take roll randomly throughout the semester and/or conduct in-class exercises that will be submitted for evaluation of participation.**
2. Participating in class discussions and exercises.
3. Not engaging in activities that show disrespect to me or to your fellow students, **including talking on cell phones or browsing the Internet during class.**

#### Do Some Good/Have Some Fun (1% extra credit)

Your experience at USU should be more than just going to class and taking tests – it should help you develop yourself as a person and prepare you to give back to society. The following two extra credit assignments (up to 0.05% each) are to encourage you to have a well-rounded experience this semester:

- Do Some Good – Do something helpful for someone else that is not part of your routine. Take the time to make it something special (not just holding the door for someone as you come in the building). Submit 1-2 paragraphs about it on Canvas by the end of the semester.
- Have Some Fun – Take some time during this semester to do something fun that you would really like to do but haven't. It doesn't need to take a lot of time or cost a lot of money, but should be something that is not part of your routine. Submit 1-2 paragraphs about it on Canvas by the end of the semester.

#### **Additional Course Policies**

Additional course policies dealing with academic integrity, course fees, grievance process, disability accommodation, etc., can be found at: <http://www.usu.edu/provost/faculty-life/syllabus.cfm>